wherein an axis of the tip forms a predetermined angle with respect to a vertical axis that passes through the substrate.

76. (New) The tip structure of Claim 75, wherein the substrate has a plane surface.

77. (New) The tip structure of Claim 75, wherein the substrate represents a single-crystalline tip epitaxial to a plane single-crystalline surface.

78. (New) The tip structure of Claim 75, wherein a single point of the substrate serves as a basis for at least two tips.

79. (New) The tip structure of Claim 75, wherein the tip has a shape that includes at least one step and two links, an axis of each subsequent link configured to form a predetermined angle with respect to the axis of a previous link.

80. (New) The tip structure of Claim 79, wherein at least one step serves as a basis for at least two links, at least one of links configured to be not epitaxial to a previous link.

81. (New) The tip structure of Claim 79, wherein at least one of the links is formed by a nanotube.

82. (New) The tip structure of Claim 81, wherein the nanotube is combined by layers of different materials, one of them being carbon.

83. (New) The tip structure of Claim 79, wherein at least one of the links is formed by at least one atomic row.

84. (New) The tip structure of Claim 75, wherein at least one tip has a particle on a top that contains, in addition to the tip material, at least one more chemical element, wherein the particle is coated by a film of the chemical element.

85. (New) The tip structure of Claim 84, wherein at least one chemical element, that is contained in the particle, participates in a growing of the tip structure.

86. (New) The tip structure of Claim 84, wherein chemical functional groups are deposited in the film.

87. (New) The tip structure of Claim 75, wherein a nonmagnetic tip has a flat top, and wherein a monodomenic magnetic particle of a conical shape is placed on the flat top, a basis of the particle contacting the flat top.

88. (New) The tip structure of Claim 75, wherein an electroconductive tip has a flat top perpendicular to the axis of the tip, wherein the flat top is coated by a dielectric film, and wherein a p-n junction in an upper part of the tip is parallel and close to the flat top.

89. (New) A tip structure for an electron emissive device or a scanning probe device, comprising a substrate and a single-crystalline tip, wherein the tip is not epitaxial to the substrate.

90. (New) The tip structure of Claim 89, wherein an axis of the tip forms an angle with respect to a vertical axis that passes through the substrate.

91. (New) The tip structure of Claim 89, wherein the substrate has a plane surface.

92. (New) The tip structure of Claim 89, wherein a single-crystalline tip epitaxial to a plane single-crystalline surface serves as the substrate.

93. (New) The tip structure of Claim 89, wherein one point of the substrate serves as a basis for at least two tips.

94. (New) The tip structure of Claim 89, wherein the tip has a shape that contains at least one step and two links, an axis of each subsequent link has a predetermined angle with respect to an axis of a previous link.

95. (New) The tip structure of Claim 94, wherein at least one step serves as a basis for two links, and wherein at least one of the links is not epitaxial to the previous one.

96. (New) The tip structure of Claim 94, wherein at least one of the links is formed by a nanotube.

97. (New) The tip structure of Claim 96, wherein the nanotube is formed by layers of different materials, one of the materials being carbon.

98. (New) The tip structure of Claim 94, wherein at least one of the links is formed by at least one atomic row.

99. (New) The tip structure of Claim 89, wherein at least one tip has a particle on a top that contains, in addition to a material of the tip, at least one more chemical element, and wherein the particle is coated by a film of the chemical element.

100. (New) The tip structure of Claim 99, wherein at least one chemical element, that is contained in the particle, participates in a growing of the tip structure, and the particle can be coated by a film of a different chemical element.

101. (New) The tip structure of Claim 99, wherein chemical functional groups are deposited on the film.

102. (New) The tip structure of Claim 89, wherein a non-magnetic tip has a flat top, wherein a monodomenic magnetic particle of a conical shape is placed on the flat top, and wherein a basis of the particle contacts the flat top.

103. (New) The tip structure of Claim 89, wherein an electroconductive tip has a flat top perpendicular to an axis of the tip, wherein the flat top is coated by a dielectric film, and wherein a p-n junction in an upper part of the tip is parallel and close to the flat top.

104. (New) A method of preparing a tip structure for an electron emissive device or a scanning probe device, comprising

epitaxially growing a tip according to a vapor-liquid-solid mechanism on a substrate by deposition from one of a vapor-gaseous and a gaseous mixture using at least one metallic solvent; and

growing the tip structure as at least one tip so that an axis of the tip forms a predetermined angle with respect to a vertical axis that passes through the substrate.

A2 cont'd

105. (New) The method of Claim 104, wherein the substrate is a single-crystalline wafer oriented along a predetermined crystallographic plane, and wherein the single-crystalline wafer allows growing the tip structure as at least one tip epitaxial to the substrate under an angle to a surface of the substrate.

106. (New) The method of Claim 104, wherein a single-crystalline tip epitaxial to a flat single-crystalline surface is used as the substrate.

107. (New) The method of Claim 104, further comprising changing at least one of a growing temperature, concentrations of compounds in a vapor-gaseous or gaseous mixture, and pressures of the vapor-gaseous or gaseous mixture, and adding at least one of at least one metallic solvent and solvent vapor.

108. (New) The method of Claim 104, further comprising performing a diffusion of at least one chemical element into the structure after growing the tip structure, wherein a structure of at least one metallic solvent is conserved.

109. (New) The method of Claim 104, further comprising immersing the structure into an amorphous material, polishing an obtained composite together with at least one apex of the tip structure until formation of a flat surface, and etching the amorphous material away.

110. (New) The method of Claim 104, further comprising performing a diffusion of at least one chemical element into the material of the tip structure after etching away the amorphous material.

111. (New) The method of Claim 104, further comprising performing a diffusion of at least one chemical element into at least one metallic solvent.

112. (New) The method of Claim 111, further comprising removing the metallic solvent by etching off the material that has diffused into at least one metallic solvent.

113. (New) The method of Claim 104, wherein at least one chemical element is evaporated onto a surface of the tip structure.

114. (New) The method of Claim 113, further comprising removing a part of the evaporated chemical element by etching off at least one of a diffusion layer from the surface of the tip structure and an amorphous layer with conservation of the chemical element on at least one apex.

115. (New) The method of Claim 104, further comprising varying at least one of a growing temperature, concentrations of compounds in a vapor-gaseous or gaseous mixture, pressures of the vapor-gaseous or gaseous mixture, and adding at least one of at least one metallic solvent and solvent vapor to create at least one of a step and a plateau on at least one apex after a solidified globule is removable.

116. (New) The method of Claim 108, further comprising using at least once a magnetic material as evaporating material, sharpening resulting magnetic particle by a bombardment with accelerated ions, and performing a monodomenization of the particle.

117. (New) The method of Claim 113, wherein the monodomenization is performed by exposing the particle to a constant magnetic field of a predetermined direction.

118. (New) The method of Claim 117, wherein the monodomenization is performed at a high temperature of the magnetic particle, the temperature can be reached by passing a field-emission current through the tip structure.

119. (New) A method of preparing at least one tip structure for an electron emissive device or a scanning probe device, comprising directionally growing according to a vapor-liquid-solid mechanism on a substrate a deposition from a vapor-gaseous or gaseous mixture using at least one metallic solvent, wherein the tip structure is grown non-epitaxially to the substrate.

120. (New) The method of Claim 119, further comprising creating a hollow in the substrate for growing the tip.

121. (New) The method of Claim 119, wherein the hollow has a shape that corresponds to a crystallographic structure of the tip material.

122. (New) A source of electrons, comprising a substrate, a field emitter, and a source of charge carriers, wherein the field emitter is a tip structure comprising a single-crystalline substrate and a single-crystalline tip epitaxial to the substrate, wherein an axis of the tip forms a predetermined angle with respect to a vertical axis that passes through the substrate.

123. (New) A cantilever for a scanning probe device, comprising at least two alternating plane-parallel layers of conducting materials separated by non-conducting layers; at least one bending section, a lever implemented from a first conducting layer; a probe placed on the lever; and at least one electrode, a section of a second conducting layer arranged along the lever at an side opposite to the probe; wherein the electrode contains a feedback system for suppressing non-resonant oscillations of the lever.

124. (New) The cantilever of Claim 123, wherein the probe is implemented as a tip structure comprising a single-crystalline substrate and a single-crystalline tip epitaxial to the substrate, wherein an axis of the tip forms a predetermined angle with respect to a vertical axis that passes through the substrate.

125. (New) The cantilever of Claim 123, wherein the electrode comprises at least one of controller that controls the lever deflections, a deflector for a forced deflection of the lever of an initial position, and a modulator for modulating the resonant lever oscillations.

126. (New) The cantilever of Claim 123, wherein at a side of the lever that is opposite to an electrode of the lever, another electrode implemented from an additional conducting layer.

127. (New) The cantilever of Claim 123, wherein between the lever and at least one electrode a vacuum gap exists, the gap being filled with at least one of a liquid or a plastic material that allows a mutual shifting of the lever and the electrode relative to each other.

128. (New) The cantilever of Claim 123, wherein the lever has a II-shape or a V-shape, and a longitudinal cavity forming lever arms.

129. (New) The cantilever of Claim 123, wherein the lever has at least one of a piezoresistive layer and a semiconductor layer doped to provide for p-conductivity.

130. (New) The cantilever of Claim 129, wherein the lever arms are separated by a longitudinal section and have doped layers of n-, n+-, p-, p+ type conductivity.

131. (New) The cantilever of Claim 128, wherein one of the lever arm serves as a drain, another lever arm serves as a source for a control system, the arms being separated by a lever section that has another conductivity, one of the electrodes implements a function of a gate.

132. (New) A scanning probe device comprising:

a cantilever containing at least one lever, at least one controlling electrode and at least one electrode for regulating and controlling lever deflections of an initial position; and

a control system for regulating and controlling the lever deflections.

133. (New) The scanning probe device of Claim 132, wherein one electrode is placed along at least two levers.

134. (New) The scanning probe device of Claim 132, wherein the control system for controlling the lever deflections represents a system for registration of changes of a capacity between the lever and at least one of the electrode and a contour quality.

135. (New) The scanning probe device of Claim 132, wherein the control system includes a system for forced deflection operating as an electrostatic or electromagnetic system.

136. (New) The scanning probe device of Claim 132, wherein at least two electrodes are placed along the same lever.

137. (New) The scanning probe device of Claim 136, wherein the control system for controlling the lever deflections represents a system for registration of changes of a capacity between the arms of the lever, separated by a longitudinal section, and at least one electrode, for controlling a lever rotation relative to a longitudinal axis, a specific frequency being chosen for each of the lever arms.

138. (New) A method of preparation of a cantilever for scanning probe devices, comprising:

forming a composite wafer having at least two alternating plane-parallel layers of conducting materials separated by non-conducting layers;

forming at least one lever from the first conducting layer; and

creating a probe on the lever wherein at least one electrode arranged along the lever at a side opposite to the probe is formed from the second conducting layer.

139. (New) The method of Claim 138, wherein the probe comprises a tip structure comprising a single-crystalline substrate and a single-crystalline tip epitaxial to the substrate, wherein an axis of the tip forms a predetermined angle with respect to a vertical axis that passes through the substrate

140. (New) The method of Claim 138, further comprising preparing a composite wafer by at least one of bonding wafers, and mechanically or chemically removing parts of the wafers with conservation of thin layers having a given thickness.

141. (New) The method of Claim 138, wherein at least one conducting layer and at least one non-conducting layer of the composite wafer are prepared by a deposition of at least one material.

142. (New) The method of Claim 138, wherein an electrode with contact outputs/terminals, and wherein a mechanic/electric structure for systems of control and regulation is formed on at least one conducting layer before the bonding, between bonding stages, or after the bonding.

143. (New) The method of Claim 142, wherein the electrode is formed on at least one conducting layer before the deposition, between the deposition stages, or after the deposition of the at least one material.

144. (New) The method of Claim 138, wherein at least one conducting layer or at least one non-conducting layer are used at the preparation of the cantilever as technological stop-layers.

145. (New) The method of Claim 138, wherein the probe has a tip structure formed by: epitaxially growing a tip according to a vapor-liquid-solid mechanism on a substrate by deposition from one of a vapor-gaseous and a gaseous mixture using at least one metallic solvent; and growing the tip structure as at least one tip so that an axis of the tip forms a predetermined angle with respect to a vertical axis that passes through the substrate.

REMARKS

The foregoing amendments are to more closely conform the application to U.S. practice. The specific changes to the specification are shown on a separate set of pages attached hereto and